COMPARISON OF USING TYPES OF PLANT AND ANIMAL OILS IN THE PRODUCTION OF ERYTHROMYCIN BY SACCHAROPOLYSPORAERYTHRAEA

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Abstract- Introduction: Erythromycin and its derivatives are the most useful macrolide products, which are produced by fermentation in the pharmaceutical industry. Saccharopolysporaerythraea is the component of aerobic actinomycetes which produces the erythromycin antibiotic in the fermentation process. In this way the effect of using types of plant and animal oils on efficiency of erythromycin was investigated.
Method: For erythromycin production, S.erythraea PTTC 1685 and different concentrations of animaloil (30, 40, 50, 60 g/l) and plant oil(rapeseed oil)(50g/l) were used in fermentation media, as main carbon sources. Fermentation flasks were put in shaker-incubator 200 rpm and 33 C ° initial pH of medium is equal to 6.8. The value of erythromycin and its activity have been measured by spectrophotometry and microbiological methods respectively.
Results: During the fermentation process strain morphology, pH, biomass and titer of erythromycin produced were measured and compared. The results show that adding concentration of 50 g/l of plant oil in fermentation mediumresulted inincreased production of erythromycin,the level of produced erythromycin approximately 2 times increase compared to the animal oil at the same concentration.After this result, toidentify that animal oil can be a good carbon source for producing erythromycin or not, different concentrations of animal oil (30, 40, 60 g/l) were used in fermentation media. The results indicated that plant oils compare with animal oilslead to an increase in productivity in aerobic processes and animal oils are not good carbon sources in any concentrations.According to the indigenous, low cost and wide availability of plant oils with its positive effect on the production of erythromycin, promises the possibility of effective and economic use of the substance to increase the efficiency of industrial production of erythromycin.

Keywords- erythromycin, fermentation, animal oil, plant oil, Saccharopolysporaerythraea, antibiotics